WHAT IS CLAIMED IS:

1. A method for adjusting a parameter of an electrical component made of a thermally mutable material and a temperature coefficient of change of said parameter, the method comprising:

selecting a target parameter value;

selecting a target temperature coefficient independent from said target parameter value and within a range of temperature coefficient values available for said target parameter value;

trimming said parameter value until said parameter value is within an acceptable margin from said target parameter value; and

trimming said temperature coefficient until said temperature coefficient is within an acceptable margin from said target temperature coefficient, while maintaining said parameter value within said acceptable margin from said target parameter value.

2. A method as claimed in claim 1, wherein said trimming said parameter comprises applying a heating cycle, and said heating cycle comprises a sequence of heat pulses to trim said parameter value in a first direction and a sequence of heat pulses to trim said parameter value in an opposite direction.

3. A method as claimed in any one of claims 1 and 2, wherein said trimming said temperature coefficient comprises selecting parameters of said heating cycle to determine a direction of trimming and an amount of trimming of said temperature coefficient.

4. A method as claimed in claim 3, wherein said selecting parameters comprises selecting a first heat pulse of said sequence of heat pulses of said heating cycle to be of a given amplitude to determine a change in said temperature coefficient.

5. A method as claimed in any one of claims 3 to 4, wherein said electrical component is a resistor and said parameter is resistance.

6. A method as claimed in any one of claims 3 to 5, wherein said electrical component is on a thermally isolated micro-platform on a substrate.

7. A method as claimed in claim 6, wherein a resistive heating element is provided for generating said sequence of heat pulses.

8. A method as claimed in claim 7, wherein said heating element is on said thermally isolated micro-platform.

9. A method as claimed in claim 4, wherein said trimming said temperature coefficient comprises driving said temperature coefficient down by using a high amplitude first pulse above a temperature coefficient change reversal threshold, and driving said temperature coefficient up using lower first pulses below said threshold.

10. A method as claimed in any one of claims 2 to 9, wherein said trimming said temperature coefficient comprises applying a large number of heating cycles.

11. A method as claimed in any one of claims 2 to 10, wherein said electrical component is on a thermally isolated micro-platform.

12. A method as claimed in any one of claims 1 to 11, wherein said parameter and said temperature coefficient can be measured at room temperature before applying a succeeding heat pulse.

13. A method as claimed in claim 12, wherein said temperature coefficient is measured during a cooling of said component with respect to an arbitrary scale, and said target temperature coefficient is near zero.

14. A method as claimed in claim 12, wherein said target temperature coefficient corresponds to a non-zero relative temperature coefficient of change.

15. A method as claimed in claim 4, wherein said trimming said parameter comprises providing a heating cycle having a first pulse just above a trimming temperature threshold to obtain a slow rate of change of said parameter, and a negligible change in said temperature coefficient

16. A method as claimed in any one of claims 1 to 15, wherein said component is part of a bridge circuit, said target parameter is a balanced state of said bridge circuit.

17. A method for providing a circuit, the method comprising:

designing said circuit including at least one thermally-mutable component having a target parameter value and a target temperature coefficient of change of said parameter value independent from said target parameter value;

specifying physical parameters for said component such that a trimmable range for said parameter includes said target parameter value, and a trimmable range for said temperature coefficient includes said target temperature coefficient of change; and

manufacturing said circuit on a substrate wherein said component has a nominal parameter value within said trimmable range for said parameter and said component has a nominal temperature coefficient of change within said trimmable range for said temperature coefficient.

18. A method as claimed in claim 17, further comprising:

trimming said nominal parameter value to within an acceptable margin from said target parameter value; and

trimming said temperature coefficient of change to within an acceptable margin from said target temperature coefficient of change parameter value.

19. A method as claimed in claim 18, wherein said specifying physical parameters comprises specifying a position of said component in said circuit and dimensions of said component.

20. A method as claimed in claim 18, wherein said trimming said nominal parameter comprises applying a heating cycle, and said heating cycle comprises a sequence of heat pulses to trim said parameter value in a first direction and a sequence of heat pulses to trim said parameter value in an opposite direction.

21. A method as claimed in any one of claims 18 to 20, wherein said trimming said nominal temperature coefficient comprises selecting parameters of said heating cycle to determine a direction of trimming and an amount of trimming.

22. A method as claimed in claim 21, wherein said selecting parameters comprises selecting a first heat pulse of said sequence of heat pulses of said heating cycle to be of a given amplitude to determine a change in said temperature coefficient.

23. A method as claimed in any one of claims 21 to 22, wherein said electrical component is a resistor and said parameter is resistance.

24. A method as claimed in any one of claims 21 to 23, wherein said electrical component is on a thermally isolated micro-platform on a substrate.

25. A method as claimed in claim 24, wherein a resistive heating element is provided for generating said sequence of heat pulses.

26. A method as claimed in claim 25, wherein said heating element is on said thermally isolated micro-platform.

27. A method as claimed in claim 22, wherein said trimming said temperature coefficient comprises driving said temperature coefficient down by using a high amplitude first pulse above a temperature coefficient change reversal threshold, and driving said temperature coefficient up using lower first pulses below said threshold.

28. A method as claimed in any one of claims 20 to 27, wherein said trimming said temperature coefficient comprises applying a large number of heating cycles.

29. A method as claimed in any one of claims 20 to 28, wherein said electrical component is on a thermally isolated micro-platform and wherein said parameter and said temperature coefficient can be measured at room temperature before applying a succeeding heat pulse.

30. A method as claimed in claim 29, wherein said temperature coefficient is measured during a cooling of said component with respect to an arbitrary scale, and said target temperature coefficient is near zero.

31. A method as claimed in claim 20, wherein said trimming said parameter comprises providing a heating cycle having a first pulse just

above a trimming temperature threshold to obtain a slow rate of change of said parameter, and a negligible change in said temperature coefficient.

32. A method as claimed in any one of claims 17 to 31, wherein said component is part of a bridge circuit, said target parameter is a balanced state of said bridge circuit.

33. An apparatus for trimming a temperature coefficient of change of a parameter of an electrical component made from a thermally mutable material, the circuit comprising:

a substrate having a portion for thermally-isolating said electrical component;

heating circuitry having a decision-making module for applying heating cycles, each heating cycle comprising a sequence of heat pulses to trim said parameter value in a first direction and a sequence of heat pulses to trim said parameter value in an opposite direction, and wherein each heating cycle trims said temperature coefficient of change by an increment; and

measuring circuitry for measuring said parameter and said temperature coefficient of said electrical component.

34. An apparatus as claimed in claim 33, wherein said decision-making module is for determining an amplitude of a heat pulse, a duration of said heat pulse, and a time interval before a succeeding heat pulse.

35. An apparatus as claimed in any one of claims 33 to 34, wherein said heating circuitry comprises a heating element for heating said electrical component.

36. An apparatus as claimed in any one of claims 33 to 35, wherein said electrical component is a resistor and said parameter is resistance.

37. An apparatus as claimed in any one of claims 33 to 36, wherein said substrate has a thermally-isolated micro-platform for said electrical component.

38. An apparatus as claimed in claim 37, wherein said heating element is on said thermally isolated micro-platform.

39. An apparatus as claimed in claim 37, wherein said heating element is on a second thermally isolated micro-platform in close proximity to said electrical component.

40. An apparatus as claimed in any one of claims 33 to 39, wherein said decision-making module determines said amplitude of a heat pulse, duration of said heat pulse, and time interval before a succeeding heat pulse as a function of a history of pulses applied to said electrical component.

41. An apparatus as claimed in any one of claims 33 to 40, wherein said component is part of a bridge circuit, said parameter is a balanced state of said bridge circuit, and said apparatus is for adjusting said temperature coefficient to zero.

42. An apparatus as claimed in any one of claims 33 to 41, wherein said heating circuitry generates a heating cycle for trimming said temperature coefficient.

43. An apparatus as claimed in claim 42, wherein said heating cycle comprises a sequence of pulses to trim said parameter in a first direction and a sequence of pulses to trim said parameter in an opposite direction.

44. An apparatus as claimed in claim 43, wherein said decision-making module determines an amplitude of a first pulse of said sequence

of pulses to determine a direction and an amount to trim of said temperature coefficient.

45. An apparatus as claimed in claim 33, wherein said electrical component is a first resistor and it resides on a first thermally-isolated micro-platform, and further comprising a second resistor made from a thermally-mutable material and residing on a second thermally-isolated micro-platform; wherein said heating circuitry comprises a first resistive heating element on said first thermally-isolated micro-platform and a second resistive heating element on said second thermally-isolated micro-platform; and wherein said measuring circuitry comprises a central resistive heating element placed on a third thermally-isolated micro-platform substantially symmetrically between said first functional resistor and said second functional resistor such that heating through said central resistive element results in a substantially symmetric temperature rise in said first functional resistor and said second functional resistor.

46. An apparatus as claimed in claim 45, further comprising two resistors connected to said first functional resistor and said second functional resistor, such that a Wheatstone bridge is formed.

47. An apparatus as claimed in any one of claims 45 and 46, wherein said thermally mutable material is polysilicon.

48. An apparatus as claimed in any one of claims 45 to 47, wherein said central resistive element is made of polysilicon.

49. An apparatus as claimed in any one of claims 45 to 48, wherein said measuring circuitry and said calculating circuitry are on a same chip as said substrate.

50. A method for trimming a temperature coefficient of change of a

parameter of at least one electrical component while maintaining a substantially constant parameter value, the method comprising applying a heating cycle to trim said parameter value away from a target parameter value and back to said target parameter value, whereby the temperature coefficient of change is modified after applying said heating cycle.

51. A method as claimed in claim 50, wherein applying the heating cycle comprises using pulses of substantially high amplitude to trim away from said target parameter value and pulses of substantially low amplitude to trim back to said target parameter value.

52. A method as claimed in claim 51, wherein said heating cycle comprises at least one heating pulse having a substantially high amplitude, followed by a plurality of heating pulses having lower amplitudes.

53. A method as claimed in claim 52, wherein said heating pulses having lower amplitudes have varying amplitudes.

54. A method as claimed in claim 53, wherein each of said heating pulses having lower amplitudes has an amplitude equal to or lower than an amplitude of a previous pulse.

55. A method as claimed in any one of claims 50 to 54, further comprising applying a second heating cycle to continue trimming said temperature coefficient of change.

56. A method as claimed in claim 55, wherein said second heating cycle comprises a first high-amplitude pulse of equal or greater amplitude than a first pulse of a previous heating cycle.

57. A method as claimed in any one of claims 50 to 56, further

comprising applying a plurality of subsequent heating cycles to further trim said temperature coefficient of change to a target temperature coefficient of change.

58. A method as claimed in claim 57, wherein said applying a plurality of subsequent heating cycles comprises trimming said temperature coefficient of change below said target temperature coefficient of change and gradually increasing said temperature coefficient of change to said target temperature coefficient of change.

59. A method as claimed in any one of claims 50 to 58, wherein said electrical component is a resistor, said parameter is resistance, and said temperature coefficient of change is temperature coefficient of resistance.

60. A method as claimed in any one of claims 50 to 59, wherein said electrical component is on a thermally isolated micro-platform on a substrate.

61. A method as claimed in claim 60, wherein a resistive heating element is provided for generating said heating cycle.

62. A method as claimed in claim 61, wherein said heating element is on said thermally isolated micro-platform.

63. A method as claimed in any one of claims 50 to 62, wherein said at least one electrical component is a pair of matched resistors, and said temperature coefficient of change is a relative temperature coefficient of change.

64. A circuit comprising at least one electrical component made of a thermally mutable material defined by an upper limit and a lower limit of

a parameter, and having a temperature coefficient of change of said parameter; characterized in that said parameter is set to a predetermined target parameter value and said temperature coefficient of change is set to a predetermined target temperature coefficient of change value independent of said target parameter value.

65. A circuit as claimed in claim 64, wherein said parameter and said temperature coefficient of change are adjusted in accordance with any one of claims 1 to 32.

66. A circuit as claimed in any one of claims 64 to 65, wherein said predetermined target parameter value and said predetermined target temperature coefficient of change are set to respect an overall predetermined circuit state.

67. A circuit as claimed in any one of claims 64 to 66, wherein said at least one component comprises at least two components having a substantially matched parameter value, and wherein said predetermined temperature coefficient of change value is a relative temperature coefficient of change between said at least two components.

68. A circuit as claimed in claim 67, wherein said substantially matched parameter value of said two components has a tolerance value no greater than 50 ppm.

69 A circuit as claimed in claim 67, wherein said substantially matched parameter value of said two components has a tolerance value no greater than 200 ppm.

70. A circuit as claimed in any one of claims 67 to 69, wherein said relative temperature coefficient of change of said two components has a tolerance value no greater than 50 ppm/K.

71. A circuit as claimed in any one of claims 67 to 69, wherein said relative temperature coefficient of change of said two components has a tolerance value no greater than 10 ppm/K.

72. A circuit as claimed in any one of claims 67 to 71, wherein said relative temperature coefficient of change of said two components is less than 3% of an as-manufactured temperature coefficient of change value of one of the two components.

73. A circuit as claimed in any one of claims 64 to 66, wherein said at least one component comprises at least two components and said target parameter value is a ratio between said at least two components, and wherein said matched parameter value of said at least two components has a tolerance value no greater than 200 ppm of said ratio.

74. A circuit as claimed in any one of claims 64 to 73, wherein said at least one component comprises at least two components and said predetermined temperature coefficient of change value is a relative temperature coefficient of change between said at least two components, and said relative temperature coefficient of change of said at least two components is a desired non-zero relative difference from each other, and has a tolerance value no greater than 10ppm/K.

75. A circuit as claimed in any one of claims 64 to 74, wherein said circuit is one of a balanced bridge circuit, a calibrated amplifier, and a calibrated sensor system.

76. A circuit as claimed in any one of claims 67 to 75, wherein said at least two components are a pair of resistors connected in series, and wherein said target temperature coefficient of change is a relative temperature coefficient equal to substantially zero.

77. A circuit as claimed in any one of claims 64 to 76, wherein said at least one component is a resistor.

78. A circuit as claimed in any one of claims 64 to 77, wherein said at least one component is on at least one thermally-isolated micro-platform.

79. A circuit as claimed in claim 78, further comprising a heating element on said at least one thermally-isolated micro-platform.

80. A circuit as claimed in claim 79, further comprising a second thermally-isolated micro-platform having a second electrical component made from a thermally mutable material and a second heating element.

81. A circuit as claimed in claim 80, further comprising a central resistive heating element on a third thermally-isolated micro-platform substantially symmetrically between said at least one electrical component and said second electrical component such that heating through said central resistive element results in a substantially symmetric temperature rise in said at least one electrical component and said second electrical component.

82. A circuit as claimed in any one of claims 64 to 81, wherein said at least one component is made of polysilicon.